TABLE I

ALLOWABLE EQUIVALENT FLUID WEIGHTS FOR DETERMINATION OF RETAINING WALL DESIGN BACKFILL PRESSURE

Slope Inclination Behind Wall Horizontal:Vertical	Equivalent Fluid Weight (pcf)
Level	50
4:1	55
3:1	60
2:1	70

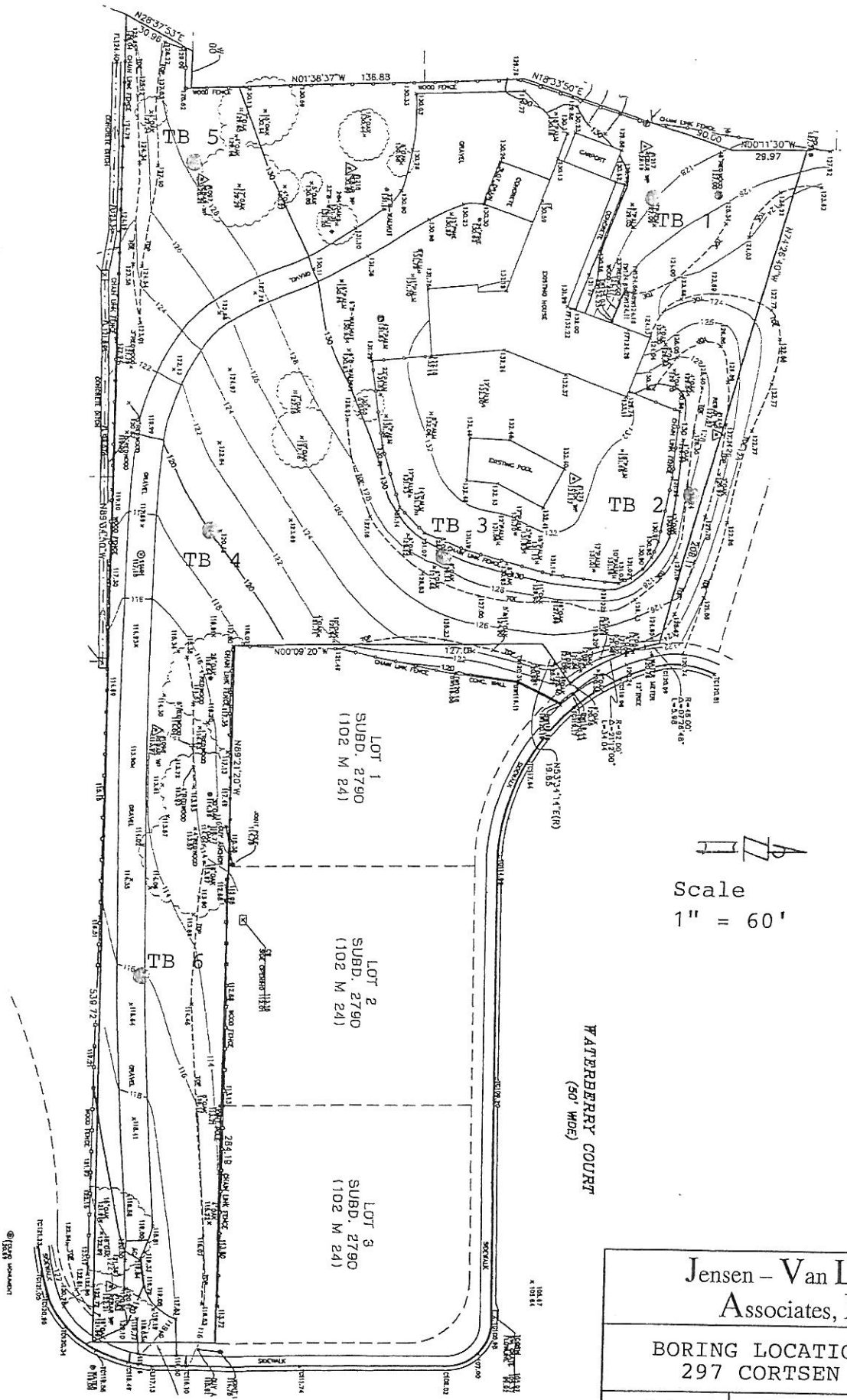
Notes:

1. Slope inclination behind retaining walls should be no steeper than 2:1.

2. These equivalent fluid weights assume that the backfill will be drained (See Figure 9).

3. Linear interpolation can be used for backfill slopes with inclinations different from those shown above.

4. Walls that are restrained from rotation should be designed to resist an additional pressure equal to 50 psf.



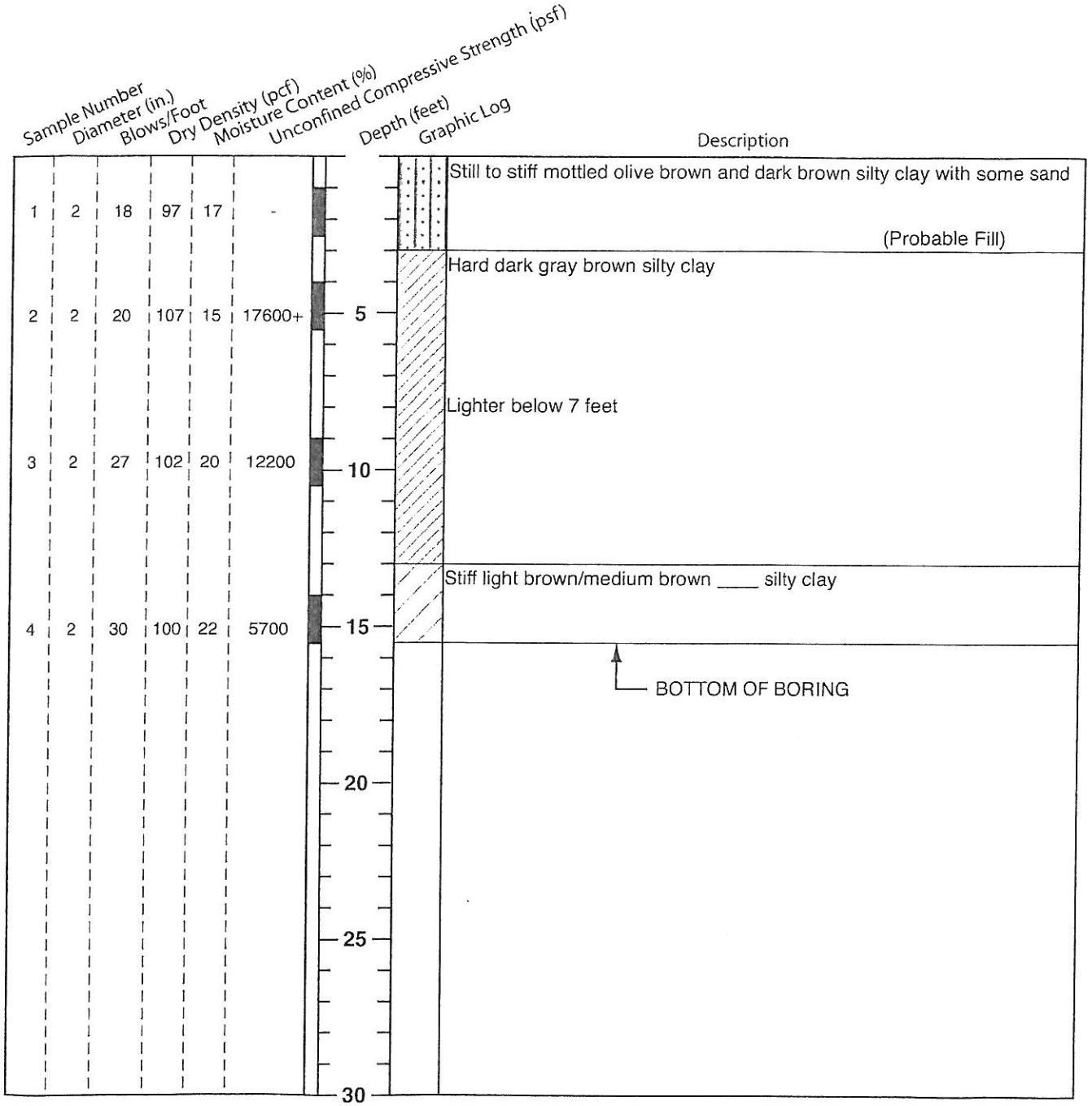
Jensen – Van Lienden Associates, Inc.		
BORING LOCATION PLAN 297 CORTSEN ROAD		
Date 10/07	**Figure** 1	**Job No.** T162AA

Jensen – Van Lienden Associates, Inc.
GEOTECHNICAL CONSULTANTS

Log of Boring Number 1

297 Cortsen Road
Pleasant Hill CA

SUPERVISOR:	SKM	**SAMPLING METHOD:**	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	**SURFACE ELEVATION:**	Not Measured
DRILLING METHOD:	4" Auger	**GROUNDWATER DEPTH:**	Dry on September 26, 2007



Job Number T162AA

Figure 2

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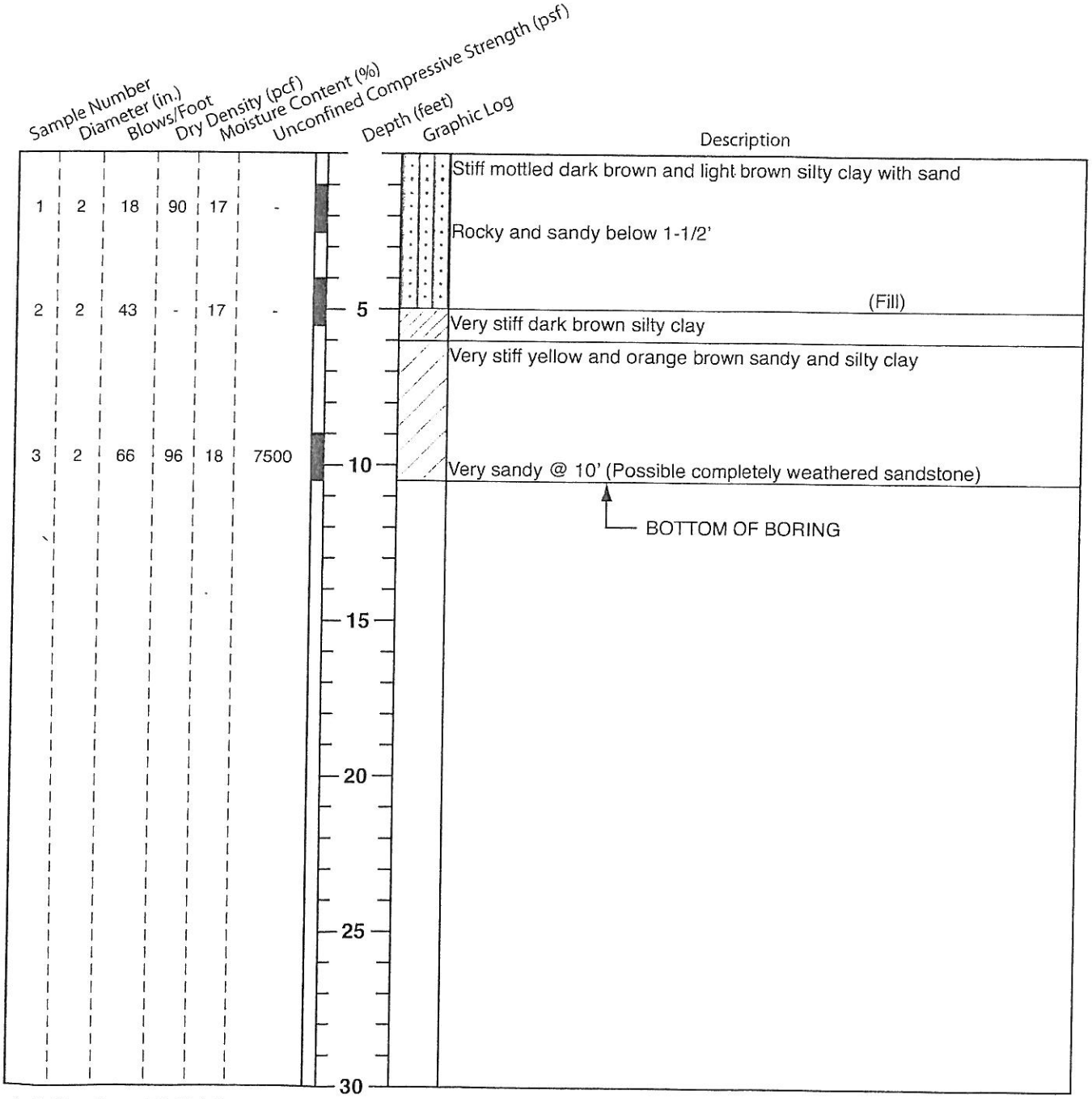
Log of Boring Number 2

297 Cortsen Road
Pleasant Hill CA

SUPERVISOR:	SKM	**SAMPLING METHOD:**	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	**SURFACE ELEVATION:**	Not Measured
DRILLING METHOD:	4" Auger	**GROUNDWATER DEPTH:**	Dry on September 26, 2007



Job Number T162AA

Figure 3

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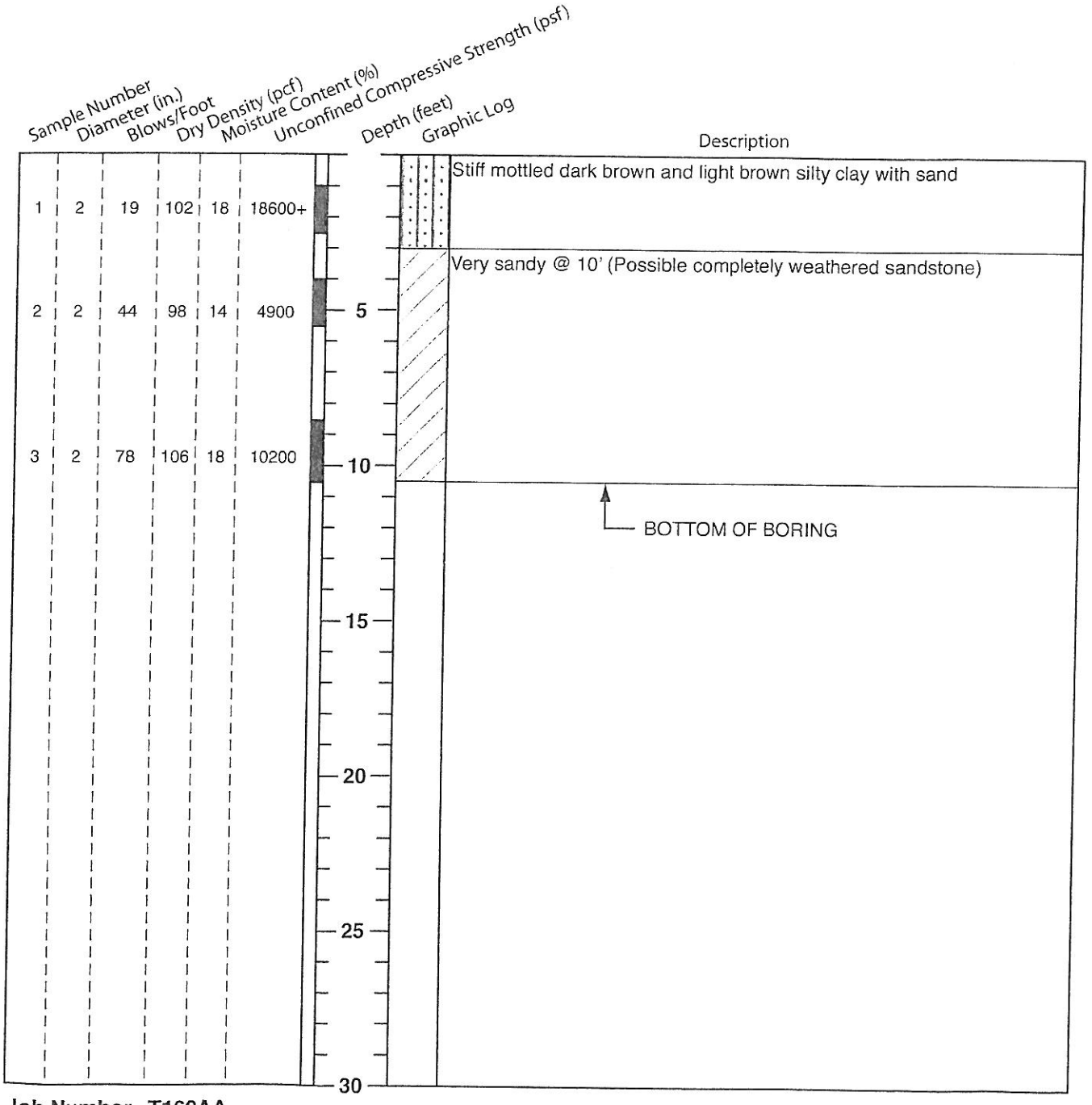
Log of Boring Number 3

297 Cortsen Road
Pleasant Hill CA

SUPERVISOR:	SKM	**SAMPLING METHOD:**	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	**SURFACE ELEVATION:**	Not Measured
DRILLING METHOD:	4" Auger	**GROUNDWATER DEPTH:**	Dry on September 26, 2007



Job Number T162AA

Figure 4

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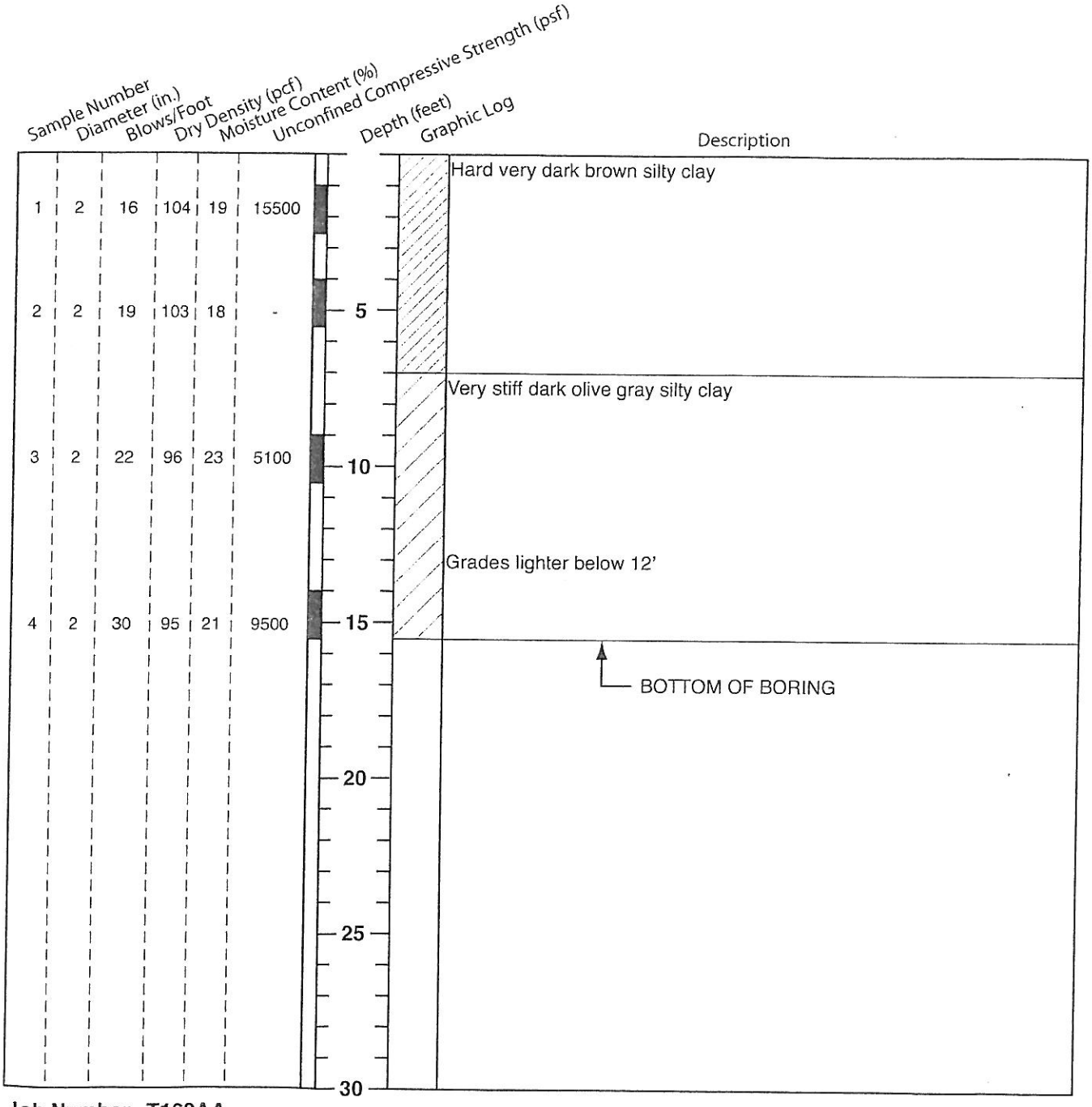
GEOTECHNICAL CONSULTANTS

Log of Boring Number 4

297 Cortsen Road
Pleasant Hill CA

SUPERVISOR:	SKM	**SAMPLING METHOD:**	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	**SURFACE ELEVATION:**	Not Measured
DRILLING METHOD:	4" Auger	**GROUNDWATER DEPTH:**	Dry on September 26, 2007



Job Number T162AA

Figure 5

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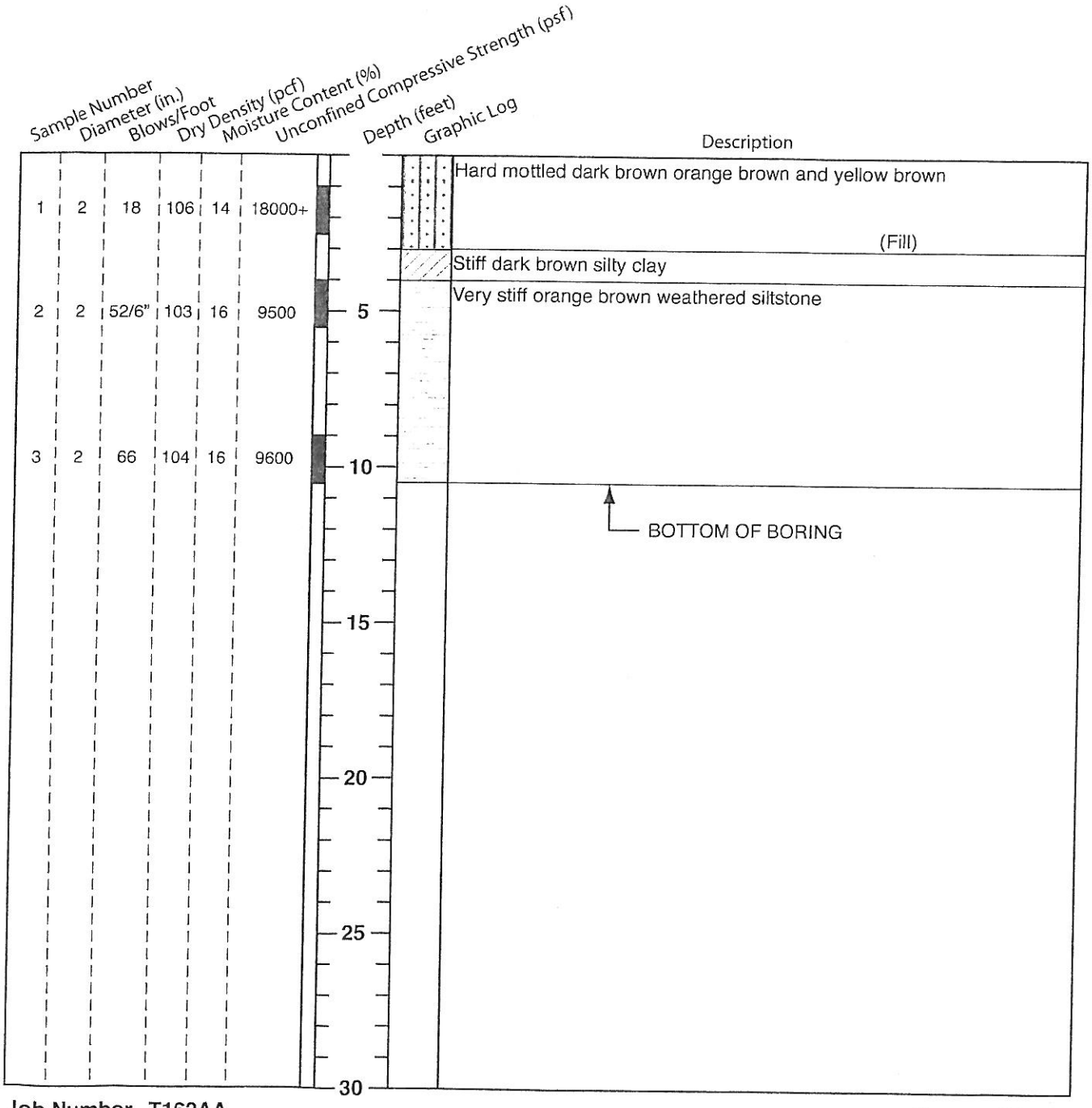
Log of Boring Number 5

297 Cortsen Road
Pleasant Hill CA

SUPERVISOR:	SKM	SAMPLING METHOD:	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	SURFACE ELEVATION:	Not Measured
DRILLING METHOD:	4" Auger	GROUNDWATER DEPTH:	Dry on September 26, 2007



Job Number T162AA

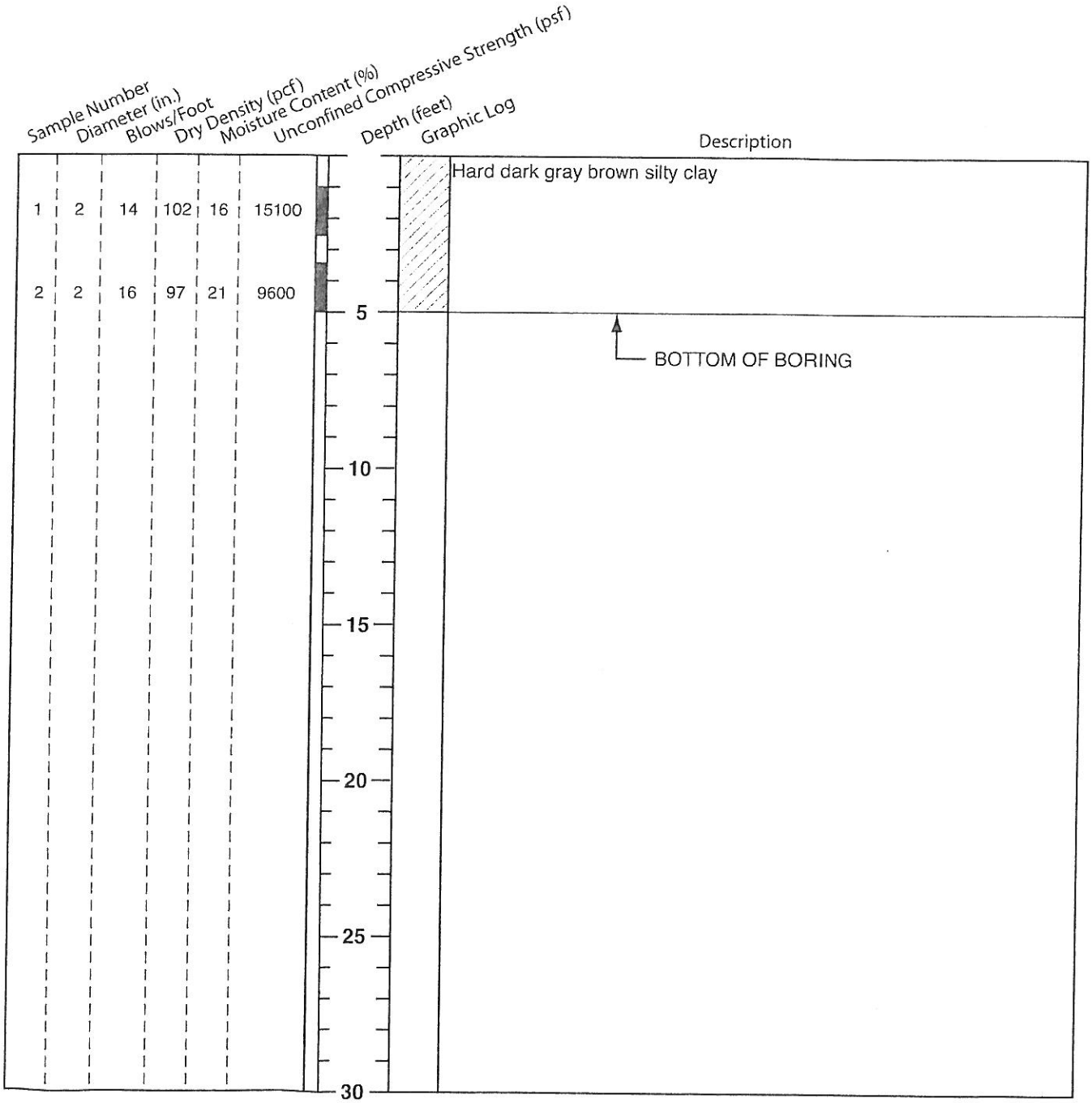
Figure 6

Jensen – Van Lienden Associates, Inc.
GEOTECHNICAL CONSULTANTS

Log of Boring Number 6

297 Cortsen Road
Pleasant Hill CA

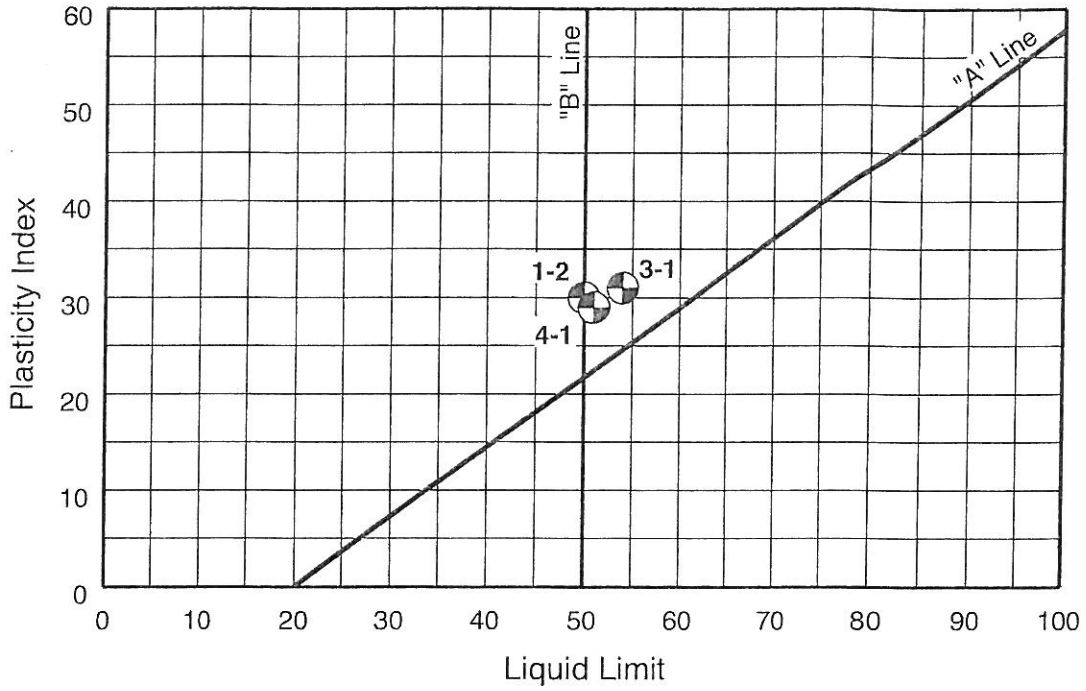
SUPERVISOR:	SKM	**SAMPLING METHOD:**	Drive with 140lb hammer
DATE DRILLED:	September 26, 2007	**SURFACE ELEVATION:**	Not Measured
DRILLING METHOD:	4" Auger	**GROUNDWATER DEPTH:**	Dry on September 26, 2007



Job Number T162AA

Figure 7

PLASTICITY CHART



INDEX TEST RESULTS

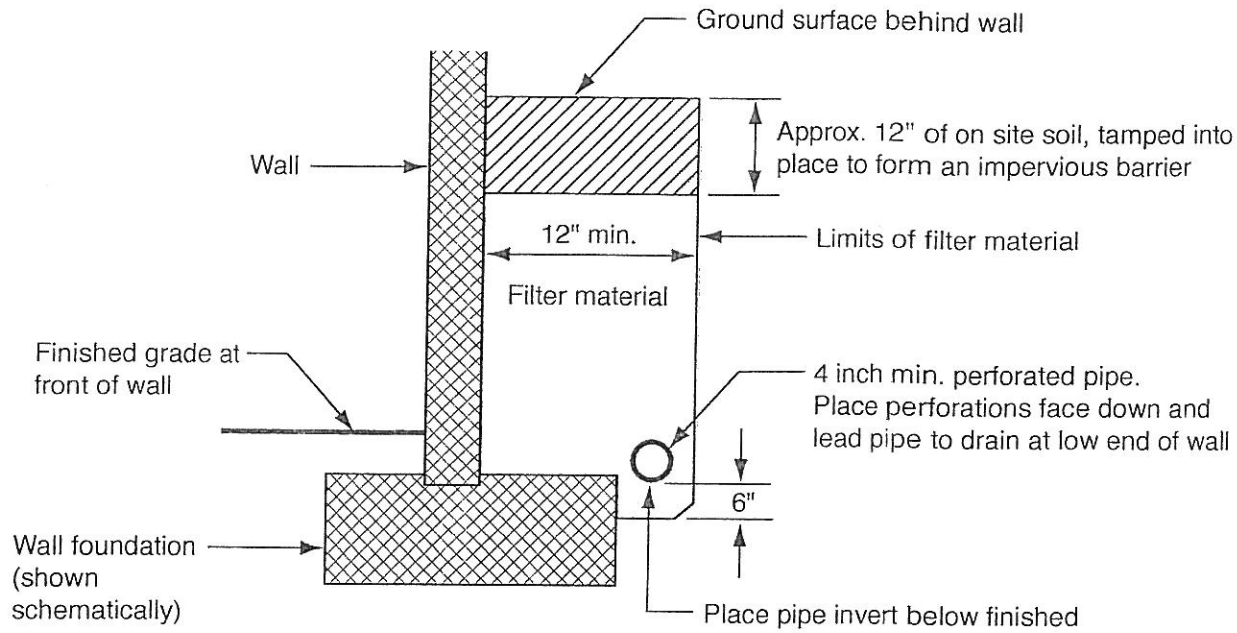
Sample Identification		Atterberg Limits (%)		Grain Sizes (% Dry Weight)		
Sample No.	Description	Liquid Limit	Plasticity Index	Sand	Silt	Clay
1-2	Gray brown silty clay	50	30	--	--	--
4-1	Dark gray brown silty clay	51	29	21	40	39
3-1	Dark and light brown silty clay with sand	54	31	19	39	42

Jensen – Van Lienden Associates, Inc.

297 Cortsen Road
Pleasant Hill CA

Date	Figure	Job No.
10/2007	8	T162AA

RECOMMENDED MATERIALS AND DIMENSIONS
SUBDRAINAGE BEHIND RETAINING WALLS



TYPICAL SECTION
(Not to Scale)

Subdrain pipe shall be manufactured in accordance with the following requirements:

a. Acrylonitrile-butadiene-styrene (ABS) plastic pipe shall conform to the specifications for ABS plastic pipe given in ASTM Designation D2282 and ASTM Designation D2751. ABS pipe shall have a minimum pipe stiffness of 45 psi at 5% deflection when measured in accordance with ASTM Method D2412.
b. Polyvinyl chloride (PVC) pipe shall conform to AASHTO Designation M278. PVC pipe shall have a minimum pipe stiffness of 50 psi at 5% deflection when measured in accordance with ASTM Method D2412 except that pipe conforming to F758 shall be suitable. Schedule 40 PVC pipe shall be suitable.

Filter material for use in backfilling trenches around and over subdrain pipes shall consist of clean coarse sand and gravel or crushed stone conforming to the following requirements:

Sieve Size	% Passing Sieve
2"	100
3/4"	70 to 100
3/8"	40 to 100
#4	25 to 50
#8	15 to 45
#30	5 to 25
#50	0 to 20
#200	0 to 3

Class 2 "Permeable Material" conforming to the State of California Department of Transportation Standard Specifications, latest edition, Section 68-1.025 shall be suitable.

Clean, coarse gravel ("drain rock") shall be suitable, provided the subsurface drain is wrapped in an acceptable geotextile ("filter fabric").

GUIDE SPECIFICATIONS
FOR ENGINEERED FILL
Job No. T162AA

A. GENERAL

1. Definition of Terms

FILL...is all soil or soil/rock materials placed to raise the grade of the site or to backfill excavations.

ON-SITE MATERIAL...is that which is obtained from the required excavations on the site.

IMPORT MATERIAL...is that hauled in from off-site areas.

SELECT MATERIAL...is a soil material meeting the requirements set forth in "C(2)" below.

ENGINEERED FILL...is a fill upon which the Soil Engineer has made sufficient tests and placement and compaction observations to enable him to issue a written statement that in his opinion the fill has been placed and compacted in accordance with the Soil Engineer's recommendations and/or the specification requirements.

ASTM SPECIFICATIONS...are the Annual Book of ASTM Standards (Part 19), American Society for Testing and Materials, latest revision.

MAXIMUM DRY DENSITY...is the maximum density for a given fill material that can be produced in the laboratory by the Standard procedure ASTM D1557, "Moisture-Density Relations of Soils Using a 10 Pound (4.5 kg) Rammer and an 18 inch (457 mm) Drop".

OPTIMUM MOISTURE CONTENT...is the moisture content at which the maximum laboratory density is achieved using the standard compaction procedure ASTM Test Designation D1557.

DEGREE OF COMPACTION...is the ratio, expressed as a percentage, of the dry density of the fill material as compacted in the field to the maximum dry density for the same material.

2. Responsibility of the Soil Engineer

The Soil Engineer shall be the Owner's representative to observe the grading operations, both during preparation of the site and compaction of

any engineered fill. He shall make enough visits to the site to familiarize himself generally with the progress and quality of the work. He shall make a sufficient number of field observations and tests to enable him to form an opinion regarding the adequacy of the site preparation, the acceptability of the fill material, and the extent to which the degree of compaction meets the specification requirements. Any fill where the site preparation, type of material, or compaction is not approved by the Soil Engineer shall be removed and/or recompacted by the contractor until the requirements are satisfied.

3. Soil Conditions

A soil investigation has been performed for the site by Jensen-Van Lienden Associates, Inc. and a report has been issued by them dated October 10, 2007 covering that investigation. The contractor shall familiarize himself with the soil conditions at the site, whether covered in that report or not, and shall thoroughly understand all recommendations associated with the grading.

B. SITE PREPARATION

1. Stripping

Prior to any cutting or filling, the site shall be stripped and grubbed to a sufficient depth to remove all grass, weeds, roots, and other vegetation. The minimum stripping depth shall be 2 inches. The site shall be stripped to such greater depth as the Soil Engineer in the field may consider necessary to remove materials that in his opinion are unsatisfactory. The stripped material shall either be removed from the site or stockpiled for re-use later as topsoil, but none of this stripped material nor any of the building debris may be used in engineered fills.

2. Preparation for Filling

Trees that are removed shall have their root systems grubbed out, and the resulting excavations shall be backfilled with engineered fill.

After stripping the surface vegetation and overexcavating existing fills to the required depths, the exposed surface shall be scarified to a minimum depth of 6 inches, watered or aerated as necessary to bring the soil to a moisture content that will permit compaction, and recompacted to the requirements of engineered fill as specified in "D" below. Prior to placing fill, the Contractor shall obtain the Soil Engineer's approval of the site

preparation in the area to be filled. The requirements of this section may be omitted only when approved in writing by the Soil Engineer.

All fills within 30 feet of a fill slope or where fills are placed on natural slopes inclined at 5 horizontal to 1 vertical or steeper shall be founded on strong soils below the natural surface soils. An excavation shall be made at the toe of the fill slope to form a key having a minimum width as recommended in the soil report and shown on the grading plans. The key shall be excavated into the underlying undisturbed rock or strong soil if approved by the Soil Engineer. Excavations shall then be made into the strong natural soils to form level benches upon which to place the fill. The construction is illustrated in the Soil Report.

C. MATERIAL USED FOR FILL

1. Requirements for General Engineered Fill

All fill material must be approved by the Soil Engineer. The material shall be a soil or soil/rock mixture that is free of organic matter or other deleterious substances. The fill material shall not contain rocks or lumps over 6 inches in greatest dimension, and not more than 15% by dry weight shall be larger than 2 1/2 inches in greatest dimension. The soils from the site, except the surface strippings, shall be suitable for use as fill.

2. Requirements for Select Fill Material

In addition to the requirements "C(1)" above, select material, when called for on the plans, must conform to the following minimum requirements:

Maximum Plasticity Index 12
Maximum % Finer than .002 mm 25

D. PLACING AND COMPACTING FILL MATERIAL

All fill material shall be compacted as specified below, or by other methods if approved by the Soil Engineer, so as to produce a minimum degree of compaction of 90%. Higher degrees of compaction shall be as described in the Soil Report.

Fill material shall be spread in uniform lifts not exceeding 8 inches in uncompacted thickness. Before compaction begins, the fill shall be brought to a water content that will permit proper compaction by either aerating the material if it is too wet or spraying the material with water if it is too dry. Each lift shall be thoroughly mixed before compaction to ensure a uniform distribution of water

content. Natural clayey soils shall be placed and compacted at a moisture content that is 1% or more above the optimum moisture content.

E. EXCAVATION

All excavations shall be carefully made true to the grades and elevations shown on the plans. The excavated surfaces shall be properly graded to provide good drainage during construction and to prevent ponding of water.

F. TREATMENT AFTER COMPLETION OF GRADING

After grading is completed and the Soil Engineer has finished his observation of the work, no further excavation or filling shall be done except with the approval of and under the observation of the Soil Engineer.

It shall be the responsibility of the Grading Contractor to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

Jensen – Van Lienden Associates, Inc.
GEOTECHNICAL ENGINEERING CONSULTANTS

OCT 16 2008

Curtis N. Jensen
Geoffrey Van Lienden

October 10, 2008
Job No. T162AA

Randy Bodhaine
P O Box 23493
Pleasant Hill CA 94523

Re: Grading Plan Dated August 19, 2008
Subdivision of 297 Cartson Road
Pleasant Hill CA

This letter confirms that we reviewed the referenced grading plan, and, on the basis of this review, conclude that our soil report of October 10, 2007 is still applicable to the project as shown on the plan.

Very truly yours

JENSEN-VAN LIENDEN ASSOCIATES, INC.

curtis N. Jensen

Curtis N. Jensen
G.E. # 438

cc: Loving and Campos

Luk and Associates